

CLAIMS

1. A composition for influencing carnitine retention in biological tissue, the composition comprising carnitine substance and an agent to increase sodium
5 potassium ATPase pump activity in the tissue.

2. A composition for influencing carnitine transport into biological tissue, the composition comprising a carnitine substance to increase blood/plasma carnitine concentration and an agent to increase the activity of a carnitine transport
10 protein.

3. A composition for increasing carnitine retention in the animal and/or human body, the composition comprising a carnitine substance and an agent to increase blood/plasma insulin concentration.
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4. A composition for use in the manufacture of a medicament for influencing carnitine retention in biological tissue, the composition comprising a carnitine substance and an agent to increase sodium-potassium ATPase pump activity in the tissue..
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5. A composition for use in the manufacture of medicament for influencing carnitine transport into biological tissue, the composition comprising a carnitine substance to increase blood/plasma carnitine concentration and an agent to increase the activity of a carnitine transport protein.
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6. A composition for use in the manufacture of a medicament to influence carnitine retention in the animal and/or human body, the composition comprising a carnitine substance and an agent to stimulate insulin release in the body.

30 7. A composition according to any preceding claim wherein the agent is operable to increase sodium dependent carnitine uptake into tissue cells, in particular skeletal muscle, liver and/or kidney cells.

8. A composition according to any preceding claim wherein the agent is operable to increase insulin activity in the tissue.

5 9. A composition according to claim 8 wherein the agent is operable to increase insulin activity in the tissue by increasing the amount of insulin in the blood/plasma.

10 10. A composition according to any preceding claim wherein the agent comprises a carbohydrate, and/or an active derivative thereof, and/or an amino acid and/or a protein.

11. A composition according to claim 10 wherein the agent is a carbohydrate and/or a derivative of a carbohydrate.

15 12. A composition according to claim 10 or 11 wherein the carbohydrate is a simple carbohydrate, and/or the derivative of the carbohydrate is a derivative of a simple carbohydrate.

20 13. A composition according to claim 11 wherein the carbohydrate is a simple sugar, and/or the derivative of the carbohydrate is a derivative of a simple sugar.

25 14. A composition according to claim 12 or 13 wherein the carbohydrate comprises glucose, sucrose, and/or fructose, and/or the derivative of the carbohydrate is a derivative of glucose, sucrose and/or fructose.

15. A composition according to any preceding claim wherein the amount by weight of the agent is between 10 and 150 times the amount by weight of the carnitine substance.

30 16. A composition according to any preceding claim wherein the amount by weight of the agent is between 10 and 95 times the amount by weight of the carnitine substance.

17. A composition according to any preceding claim wherein the amount by weight of the agent is between 10 and 40 times the amount by weight of the carnitine substance.

5 18. A composition according to any preceding claim comprising substantially 0.25g to 3g carnitine substance and between 2.5g and 450g of the agent.

19. A composition according to any preceding claim comprising substantially 0.25g to 3g carnitine substance and between 2.5g and 285g of the agent.

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20. A composition according to any preceding claim comprising substantially 0.25g to 3g carnitine substance and between 2.5g and 120g of the agent.

21. A composition according to any preceding claim in the form of a solution.

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22. A composition according to any preceding claim in the form of an aqueous solution.

20 23. A food supplement comprising a carnitine substance and an agent to increase the sodium-potassium A T Pase pump activity in the tissue.

24. A food supplement comprising a carnitine substance to increase blood/plasma carnitine concentration, and an agent to increase the activity of a carnitine transport protein.

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25. A food supplement comprising a carnitine substance and an agent to increase blood/plasma insulin concentration.

30 26. A food supplement according to claims 23, 24 or 25 wherein the agent is operable to increase sodium dependent carnitine uptake into tissue cells, in particular skeletal muscle, liver and/or kidney cells.

27. A food supplement according to any of claims 23 to 26 wherein the agent is operable to increase insulin activity in the tissue.

28. A food supplement according to claim 27 wherein the agent is operable to increase the insulin activity in the tissue by increasing the amount of insulin in the blood/plasma.

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29. A food supplement according to any of claims 23 to 28 wherein the agent comprise a carbohydrate, and/or an active derivative thereof and/or an amino acid and/or a protein.

10 30. A food supplement according to claim 29 wherein the agent is a carbohydrate and/or a derivative of a carbohydrate.

15 31. A food supplement according to claim 29 or 30 wherein the carbohydrate is a simple carbohydrate and/or the derivative of the carbohydrate is a derivative of a simple carbohydrate.

20 32. A food supplement according to claim 31 wherein the carbohydrate is a simple sugar, and/or the derivative of the carbohydrate is a derivative of a simple sugar.

33. A food supplement according to claim 30, 31 or 32 wherein the carbohydrate comprises glucose, sucrose and/or fructose, and/or the derivative of the carbohydrate comprises a derivative of glucose, sucrose and/or fructose.

25 34. A food supplement according to any of claims 23 to 33 wherein the amount by weight of the agent is between 10 and 150 times the amount by weight of the carnitine substance.

30 35. A food supplement according to claims 23 to 34 wherein the amount by weight of the agent is between 10 and 95 times the amount by weight of the carnitine substance.

36. A food supplement according to claims 23 to 35 wherein the amount by weight of the agent is between 10 and 40 times the amount by weight of the carnitine substance.

5 37. A food supplement according to claims 23 to 36 comprising substantially 0.25g to 3g carnitine substance and between 2.5g and 450g of the agent.

10 38. A food supplement according to any of claims 23 to 37 comprising substantially 0.25g to 3g carnitine substance and between 2.5g and 285g of the agent.

15 39. A food supplement according to any of claims 23 to 38 comprising substantially 0.25g to 3g carnitine substance and between 2.5g and 120g of the agent.

40. A food supplement according to claims 23 to 39 in the form of a solution.

20 41. A food supplement according to any of claims 23 to 40 in the form of an aqueous solution.

25 42. A method of influencing carnitine retention in biological tissue, in particular tissue of the animal and/or human body, the method comprising administering to the tissue a carnitine substance and an agent operable to increase sodium-potassium ATPase pump activity in the tissue.

43. A method of increasing carnitine retention in the animal and/or human body, the method comprising administering to the body a carnitine substance and an agent to increase blood/plasma insulin concentration.

30 44. A method of influencing carnitine transport into biological tissue, the method comprising administering to the body a carnitine substance to increase blood/plasma carnitine concentration and an agent to increase the activity of a carnitine transport protein.

45. A method according to any of claims 42 to 44 wherein the method increase carnitine retention in the tissue by increasing the transportation of the carnitine substance, or a derivative thereof into tissue cells.

5 46. A method according to claim 45 wherein transportation is increased by stimulation of a sodium dependent transport protein and substantially simultaneously increasing blood/plasma carnitine concentration.

10 47. A method according to any of claims 42 to 46 wherein the agent is operable to increase sodium dependent carnitine uptake into tissue cells, in particular skeletal muscle, liver and/or kidney cells.

15 48. A method according to any of claims 42 to 47 wherein the agent is operable to increase insulin activity in the tissue.

49. A method according to claim 48 wherein the agent is operable to increase insulin activity in the tissue by increasing the amount of insulin in the blood/plasma.

20 50. A method according to any of claims 42 to 49 wherein the agent comprises a carbohydrate, and/or an active derivative thereof, and/or an amino acid and/or a protein.

25 51. A method according to claim 50 wherein the agent is a carbohydrate and/or a derivative of a carbohydrate.

30 52. A method according to claim 50 or 51 wherein the carbohydrate is a simple carbohydrate, and/or the derivative of the carbohydrate is a derivative of a simple carbohydrate.

53. A method according to claim 52 wherein the carbohydrate is a simple sugar, and/or the derivative of the carbohydrate is a derivative of a simple sugar.

54. A method according to claim 52 or 53 wherein the carbohydrate comprises glucose, sucrose and/or fructose, and/or the derivative of the carbohydrate is a derivative of glucose, sucrose and/or fructose.

5 55. A method according to any of claims 42 to 54 wherein the method involves oral administration and ingestion of the carnitine substance and agent.

56. A method according to claim 55 wherein the oral administration and ingestion of the carnitine substance and the agent occurs simultaneously.

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57. A method according to any of claims 42 to 56 wherein the amount by weight of the agent is between 10 and 150 times the amount by weight of the carnitine substance.

15 58. A method according to any of claims 42 to 57 wherein the amount by weight of the agent is between 10 and 95 times the amount by weight of the carnitine substance.

20 59. A method according to any of claims 42 to 58 wherein the amount by weight of the agent is between 10 and 40 times the amount by weight of the carnitine substance.

25 60. A method according to any of claims 42 to 59 wherein substantially 0.25g to 3g of the carnitine substance and between 2.5g and 450g of the agent are administered.

61. A method according to any of claim 42 to 60 when substantially 0.25g to 3g of the carnitine substance and between 2.5g and 285g of the agent are administered.

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62. A method according to any of claims 42 to 61 wherein substantially 0.25g to 3g of the carnitine substance and between 2.5g and 120g of the agent are administered.

63. A composition substantially as herein described with reference to Example I, II or III.

64. A food supplement substantially as herein described with reference to Examples I, II or III.

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65. A method substantially as here described with reference to Examples I, II or III.

10 66. Any novel subject matter or combination including novel subject matter disclosed herein, whether or not within the scope of or relating to the same invention as any of the preceding claims.